



Module 2 Overview of HIV Prevention in Mothers, Infants, and Young Children

SESSION 1	Comprehensive Approach to Reducing HIV Infection in Infants and Young Children
SESSION 2	Mother-to-Child Transmission of HIV Infection
SESSION 3	Comprehensive Approach to Prevention of HIV Infection in Infants and Young Children
SESSION 4	Role of Maternal and Child Health Services in the Prevention of HIV Infection in Infants, and Young Children

After completing the module, the participant will be able to:

- Describe the comprehensive approach to prevention of HIV infection in infants and young children.
- Discuss mother-to-child transmission (MTCT) of HIV infection.
- Describe the four elements of a comprehensive approach to prevention of HIV infection in infants and young children.
- Describe the role of maternal and child health (MCH) services in the prevention of HIV infection in infants and young children.

Relevant Policies for Inclusion in National Curriculum**Session 3**

- Element 3: Prevention of HIV transmission from women infected with HIV to their infants
 - Local/national/regional summary of epidemiology of MTCT
 - Brief introduction to local/national PMTCT policy and programme including PMTCT targets
- Element 4: Provision of treatment, care, and support to women infected with HIV, their infants, and their families
 - Local/national PMTCT-Plus targets
- Appendices: copies of patient brochures on personal risk reduction strategies (if available)

SESSION 1 Comprehensive Approach to Reducing HIV Infection in Infants and Young Children

Exercise 2.1 Interactive discussion: local epidemiology	
Purpose	To learn about HIV- and PMTCT-related statistics for your region and share your understanding of the meaning of these data.
Duration	10 minutes
Instructions	<ul style="list-style-type: none">▪ Review the HIV-related statistics and contribute your perspective as a healthcare worker to the group discussion about factors that are fuelling the HIV epidemic.

Reducing HIV infection in infants and young children requires a comprehensive approach that includes the four elements listed below:

- Element 1: Primary prevention of HIV infection
- Element 2: Prevention of unintended pregnancies among women infected with HIV
- Element 3: Prevention of HIV transmission from women infected with HIV to their infants
- Element 4: Provision of treatment, care, and support to women infected with HIV, their infants, and their families

Definition

PMTCT (prevention of mother-to-child transmission) is a commonly used term for programmes and interventions designed to reduce the risk of mother-to-child transmission (MTCT) of HIV.

Access to comprehensive MCH services (ie, antenatal, postnatal and child health services) is central to efforts to reduce HIV infection in infants and young children.

The following sessions provide more details on the specific elements of the comprehensive approach.

SESSION 2 Mother-to-Child Transmission of HIV Infection

Exercise 2.2 Interactive discussion: local terminology	
Purpose	To share knowledge about the local terms used in HIV/AIDS prevention, care, and treatment programmes.
Duration	10 minutes
Instructions	<ul style="list-style-type: none">▪ One person in the group will be asked to discuss the risks of HIV transmission from a mother to her baby during pregnancy, during labour and delivery, and when breastfeeding as she would explain these concepts to a patient.▪ Discuss the words/concepts used locally that are the useful and clear when working with pregnant women. Concepts where consensus might be important include: window period, condom, HIV, virus, ARVs, replacement feeding, stigma, disclosure.▪ Also share with the group your knowledge of local terms used to describe HIV disease or people with HIV.

The more technical term for MTCT is vertical transmission or perinatal transmission. The majority of children infected with HIV acquire the virus through MTCT.

Use of the term “MTCT” attaches no blame or stigma to the woman who gives birth to a child infected with HIV. It does not suggest deliberate transmission by the mother, who is often unaware of her own infection status and unfamiliar with the transmission risk to infants. Use of the term should not obscure the fact that HIV is often introduced into a family through the woman's sexual partner.



Refer to the *Pocket Guide*

MTCT can occur during:

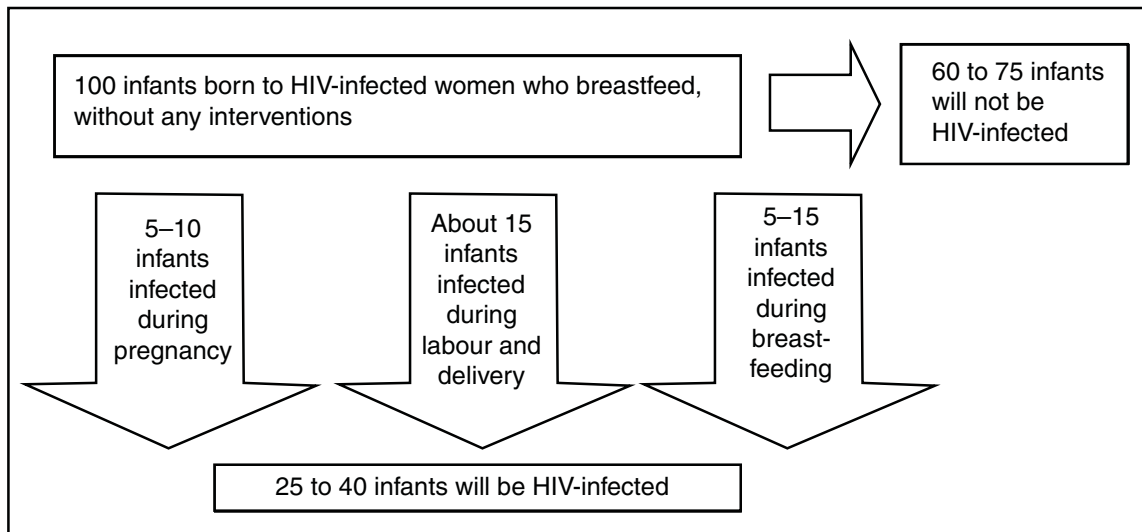
- Pregnancy
- Labour and delivery
- Breastfeeding

Risk of transmission without interventions

Most transmission occurs during labour and delivery, but depending on breastfeeding practices and duration there is also substantial risk of HIV transmission during breastfeeding.

Figure 2.1 shows that without intervention (ARV prophylaxis or treatment) up to 40% of infants born to mothers infected with HIV who breastfeed can become HIV-infected.

Figure 2.1 HIV Outcomes of Infants Born to Women infected with HIV



Note: Figure 2.1 gives an overall picture of possible outcomes, and there will be variability among different populations.

Risk factors for transmission

A great deal is known about specific factors that may put a woman at higher risk of transmitting HIV to her infant:

- Viral, maternal, obstetrical, foetal, and infant-related factors all influence the risk of MTCT.
- *The most important risk factor for MTCT is the amount of HIV virus in the mother's blood, known as the viral load. The risk of transmission to the infant is greatest when the viral load is high—which is often the case with recent HIV infection or advanced HIV/AIDS.*

Some of the risk factors for transmission are the same and some are different during pregnancy, labour and delivery, and breastfeeding. These similarities and differences are summarised in Table 2.1.

Table 2.1 Maternal factors that may increase the risk of HIV transmission

Pregnancy	Labour and Delivery	Breastfeeding
<ul style="list-style-type: none"> ▪ High maternal viral load (new or advanced HIV/AIDS) ▪ Viral, bacterial, or parasitic placental infection (eg, malaria) ▪ Sexually transmitted infections (STIs) ▪ Maternal malnutrition (indirect cause) 	<ul style="list-style-type: none"> ▪ High maternal viral load (new or advanced HIV/AIDS) ▪ Rupture of membranes more than 4 hours before labour begins ▪ Invasive delivery procedures that increase contact with mother's infected blood or body fluids (eg, episiotomy, foetal scalp monitoring) ▪ First infant in multiple birth ▪ Chorioamnionitis (from untreated STI or other infection) 	<ul style="list-style-type: none"> ▪ High maternal viral load (new or advanced HIV/AIDS) ▪ Duration of breastfeeding ▪ Early mixed feeding (eg, food or fluids in addition to breastmilk) ▪ Breast abscesses, nipple fissures, mastitis ▪ Poor maternal nutritional status ▪ Oral disease in the baby (eg, thrush or sores)

HIV and pregnancy

Pregnancy itself does not seem to have an effect on progression of HIV/AIDS. Women with HIV/AIDS, however, are more likely to experience pregnancy-related complications such as premature delivery.

SESSION 3 Comprehensive Approach to Prevention of HIV Infection in Infants and Young Children

Although PMTCT programmes often focus on ARV prophylaxis, a comprehensive approach to the prevention of HIV infection in infants and young children consists of four elements:

Element 1 Prevention of primary HIV infection

Decreasing the number of mothers infected with HIV is the most effective way of reducing MTCT. HIV infection will not be passed on to children if parents-to-be are not infected with HIV. Primary prevention strategies include the following components:

Safer and responsible sexual behaviour and practices.

Safe and responsible sexual behaviour and practices include, as appropriate, delaying the onset of sexual activity, practising abstinence, reducing the number of sexual partners and using condoms.

This approach has come to be known as the “ABC” approach.

A = Abstinence—Refrain from having sexual intercourse.

B = Be faithful—Be faithful to one partner not infected with HIV.

C = Condom use—Use condoms correctly and consistently.

Recent reports of increasing new HIV infections transmitted from husbands to wives indicate a continued need to educate people about safer sex practices and other behaviour changes. For example, being faithful to one partner not infected with HIV is a partner reduction behaviour that has proven significant in slowing the spread of HIV infection.

Behaviour change communication (BCC) efforts aim to change the behaviours that place individuals at risk for becoming HIV-infected or spreading HIV infection. BCC recognises that behaviour change is not simply a matter of increased knowledge. Many factors, including family, church and community, influence change. BCC attempts to create a household, community, and health facility environment whereby individuals can modify their behaviour to decrease risk.

Factors contributing to women’s vulnerability to HIV include poverty, lack of information, abuse, violence, and coercion by men who have several partners.

Especially among young women, the successful implementation of the “ABCs” outlined above may require support from organised programs. Healthcare workers can help women address these challenges through education and community linkages.

Provide access to condoms.

Condoms can help prevent HIV transmission when used correctly and consistently, especially in high-risk settings. Programmes that promote condom use for HIV prevention should also focus on condom use for PMTCT.

Provide early diagnosis and treatment of STIs.

The early diagnosis and treatment of STIs can reduce the incidence of HIV in the general population by about 40%. STI treatment services present an opportunity to provide information on HIV infection, MTCT, and referral for testing and counselling.

Make HIV testing and counselling widely available.

HIV testing and counselling services need to be made available to all women of childbearing age because PMTCT interventions depend on a woman knowing her HIV status.

Provide suitable counselling for women who are HIV-negative.

Counselling provides an opportunity for a woman who is HIV-negative to learn how to protect herself and her infant from HIV infection. It can also serve as powerful motivation to adopt safer sex practices, encourage partner testing, and discuss family planning.

Exercise 2.3 Interactive group game: STI handshake	
Purpose	To explore the concept of HIV and STI transmission when individuals are sexually active with multiple partners, either with or without the use of condoms
Duration	30 minutes
Instructions	<ul style="list-style-type: none">▪ Take a piece of paper from the basket and do not look at it.▪ Approach three other people in the group and shake hands with them. It is important to remember with whom you shook hands.▪ After you have shaken hands with 3 people, return to your seat and open up the sheet of paper.▪ The facilitator will give you specific directions about standing up or sitting down based on what is written on your piece of paper and the people with whom you shook hands.▪ Repeat this process again as requested by the facilitator.

Element 2 Prevention of unintended pregnancies among women infected with HIV

With appropriate support, women who know they are HIV-infected can avoid unintended pregnancies and therefore reduce the number of infants at risk for MTCT.

The rapid spread of HIV has made access to effective contraception and family planning services even more important throughout the world. Most women in resource-constrained settings are unaware of their HIV status. Access to family planning counselling and referral for women known or suspected to be HIV-infected and their partners is critical in preventing unintended pregnancies. Such counselling also provides an opportunity to discuss related risks, both present and future, and is a vital component to reducing maternal and child morbidity and mortality.

- *Effective family planning can help prevent unintended pregnancies and help women who are HIV-infected protect their own health while taking care of their families.*
- Providing safe and effective contraception and high-quality reproductive health counselling contribute to informed decision-making about pregnancy choices.

Element 3 **Prevention of HIV transmission from women infected with HIV to their infants**

PMTCT usually refers to specific programs to identify pregnant women infected with HIV and to provide them with effective interventions to reduce MTCT.

Element 3 in this module provides an overview of PMTCT. Module 3 discusses PMTCT interventions in detail.

Specific interventions to reduce HIV transmission from an infected woman to her child include HIV testing and counselling, antiretroviral prophylaxis and treatment, safer delivery practices, and safer infant-feeding practices. When an ARV drug is given to mother and infant to prevent MTCT, it is referred to as ARV *prophylaxis*.

Note: This curriculum focuses on women infected with HIV-1; *Appendix 2-A* provides information about PMTCT services for women infected with HIV-2.



Refer to *Pocket Guide*

PMTCT core interventions

- HIV testing and counselling
- Antiretroviral treatment and prophylaxis
- Safer delivery practices
- Safer infant-feeding practices

How these interventions work

- Identify women infected with HIV.
- Reduce maternal viral load.
- Reduce infant exposure to the virus during labour and delivery.
- Reduce infant exposure to the virus through safer feeding options.

Ways to reduce risk of MTCT

- HIV testing and counselling
- Antiretrovirals
- Elective cesarean section, where safe and feasible
- Safer delivery practices
- Infant-feeding counselling for safer feeding practice
- Early termination of pregnancy, where safe and legal

In industrialised countries where women infected with HIV receive triple drug ARV treatment and do not breastfeed—and where elective cesarean sections are safe, feasible, and commonly performed—the rate of MTCT has been reduced to about 2%.

ARV prophylaxis can reduce MTCT by 40–70%. The impact is greater (closer to 70%) when women do not breastfeed, because current ARV prophylaxis regimens only prevent HIV transmission during the early breastfeeding period. Studies are ongoing to determine whether ARV prophylaxis for mother or child during breastfeeding can help reduce the risk of HIV transmission during that period.



Refer to *Pocket Guide*

Partner involvement in PMTCT

PMTCT efforts should be as comprehensive as possible and acknowledge that both mothers and fathers have an impact on transmission of HIV to the infant:

- Both partners need to be aware of the importance of safer sex throughout pregnancy and breastfeeding.
- Both partners should be tested and counselled for HIV.
- Both partners should be made aware of and provided with PMTCT interventions.

ARV prophylaxis for the mother

ARV prophylaxis given to a pregnant woman who is HIV-infected does not confer long-term benefits to the woman herself. Pregnant women with advanced HIV infection require combination ARV treatment to reduce the risk of AIDS-related illness. As treatment becomes more available, there should be integration between prophylaxis and treatment services.

Element 4 Provision of treatment, care, and support to women infected with HIV, their infants and their families

Programmes for the prevention of HIV in infants and young children will identify large numbers of women infected with HIV who will need special attention. Medical care and social support are important for women living with HIV/AIDS to address concerns about both their own health and the health and future of their children and families.

If a woman is assured that she will receive adequate treatment and care for herself, her children, and her partner, she is more likely to accept HIV testing and counselling and, if HIV-positive, interventions to reduce MTCT.

It is important to develop and reinforce linkages with programmes for treatment, care, and support services to promote long-term care of women who are HIV-infected and their families.



Refer to *Pocket Guide*

HIV-related treatment, care, and support services for women

Services for women include the following:

- Prevention and treatment of opportunistic infections
- ARV treatment
- Treatment of symptoms
- Palliative care
- Nutritional support
- Reproductive health care, including family planning and counselling
- Psychosocial and community support

Care and support of the infant and child who are HIV-exposed

Children whose mothers are infected with HIV are at higher risk than other children for illness and malnutrition for multiple reasons:

- They may be infected with HIV and become ill—even when adequate health care and nutrition are provided.
- Those who receive replacement feeding lack the protective benefits of breastfeeding against gastroenteritis, respiratory infections, and other complications.
- If their mother is ill, she may have difficulty caring for them adequately.
- Their families may be economically vulnerable due to AIDS-related illnesses and deaths among adult relatives.

Nutritional support for the infant or child who is HIV-exposed

- Support the mother's infant-feeding choice.
- Provide education on hydration and early reporting of diarrhoea.
- Monitor for growth and development.
- Monitor for signs of infection that can alter feeding patterns.

Infants and children who are HIV-exposed require regular follow-up care—especially during the first 2 years of life—including immunisations, HIV testing, and ongoing monitoring of feeding, growth, and development (See *Module 7: Linkages to Treatment, Care and Support for Mothers and Families with HIV Infection*).

SESSION 4 Role of Maternal and Child Health Services in the Prevention of HIV Infection in Infants and Young Children

Maternal and child health services

HIV infection is one of the most important health problems for pregnant mothers and newborns in many developing countries. PMTCT programmes need to be integrated as an essential part of MCH care.

MCH care encompasses a broad range of educational and clinical services that help mothers, their children, and their families lead healthy lives. *Although all four elements of a comprehensive PMTCT programme are important, antenatal care is the most common entry point for women into those programmes.* MCH programmes facilitate PMTCT by providing:

- Essential antenatal care
- Family planning services
- ARV treatment and prophylaxis
- Safer delivery practices
- Counselling and support for the woman's chosen infant-feeding method

All mothers and infants will benefit from integrating PMTCT into existing MCH care services. Many elements of PMTCT programmes parallel and complement initiatives that are in development or are already offered by providers of quality antenatal care (eg, Safer Motherhood, Baby Friendly Hospitals, Baby Feeding and Saving Newborn Lives).

Comprehensive MCH services

- Recognise that the best approach to preventing HIV infection in infants and children begins with prevention of primary infection in parents-to-be.
- Provide information to prevent unintended pregnancies in both women who are HIV-positive and high-risk women with unknown status.
- Provide education in early recognition and treatment of STIs.
- Provide education about reducing the risk of MTCT.
- Link and refer patients to health care and community services that include the following:
 - HIV testing and counselling
 - Nutritional care
 - ARV treatment
 - Psychosocial and/or spiritual support (such as support groups for women with HIV)
 - Treatment of symptoms
 - Palliative care
 - Economic assistance
- Educate patients about how to recognise symptoms of opportunistic infections and measures they can take to prevent such infections.
- Educate patients about how to recognise early signs and symptoms of HIV infection in the infant or child.

Integration of PMTCT into postnatal MCH services

Effective integration of PMTCT into postnatal MCH services is likely to strengthen maternal care, infant care, and family care.

- MCH postpartum care services help protect the mother's health by providing medical and psychosocial supportive care.
- MCH postnatal care services offer assessment of infant growth and development, nutritional support, immunisations, and early HIV testing. If the infant is HIV-infected, additional support services may include ARV treatment.
- MCH services provide social support, HIV testing, and counselling for family members, referrals to community-based support programmes, and assistance with contending with stigma.

The PMTCT programme

A comprehensive PMTCT programme provides the continuum of care for mother and child.

The continuum begins with educating adolescent women about primary prevention of infection and continues through treatment, care, and support to women who are HIV-positive and their families.

PMTCT programmes ensure women receive education and services to reduce risk of MTCT throughout pregnancy, labour and delivery, and infant feeding. They also provide support for both mother and child, especially during the crucial years of childhood growth and development. This comprehensive approach ultimately provides linkages to existing community services to address the complex needs and issues involved in HIV prevention, treatment, and management.

Module 2: Key Points

- A comprehensive approach is needed to prevent HIV infection in infants and young children.
- The 4 elements of the comprehensive approach to PMTCT are:
 - Primary prevention of HIV infection
 - Prevention of unintended pregnancies in women infected with HIV
 - Prevention of HIV transmission from women infected with HIV to their infants
 - Provision of treatment, care and support to women infected with HIV, their infants and their families
- Without intervention the risk of MTCT is 25-40%.
- Combination interventions can reduce the MTCT rate by up to 40% in breastfeeding populations.
- Because ARV prophylaxis alone does not treat the mother's infection, ongoing treatment, care and support are needed.
- MCH services can act as an entry point to the range of services that provide treatment, care and support to the woman who is HIV-positive and affected family members.
- Linkages to community services can enhance treatment, care, and support.

APPENDIX 2-A MTCT services for the woman who is HIV-2 infected

The woman infected with HIV-2 should have access to the entire range of antenatal, labour and delivery, and postnatal services as well as linkages to other services designed for women infected with HIV-1. Offering the mother infected with HIV-2 short-course ARV prophylaxis to prevent MTCT should follow national and local policy, if such a policy statement exists.

The following information, adapted from the CDC (October 1998) provides pertinent background on HIV-2 for consideration:

- HIV-2 infections are predominantly found in West Africa.
- HIV-2 infections:
 - Have the same modes of transmission as HIV-1
 - Also progress to AIDS
 - Are associated with similar opportunistic infections
 - Appear to be less transmissible from mother to child than HIV-1
 - Develop more slowly and appear less virulent than HIV-1
- Testing for both HIV-1 and HIV-2 should be considered in the following situations:
 - In settings where HIV-2 is present
 - When illnesses (such as opportunistic infections) appear in someone whose HIV-1 test is negative
 - When an HIV-1 Western blot indicates certain indeterminate test band patterns
- The best approach to clinical treatment of HIV-2 is unclear. The following factors, however, should be considered:
 - Non-nucleoside reverse transcriptase inhibitors (NNRTIs), such as nevirapine, are not as effective against HIV-2. Therefore, zidovudine therapy should be considered for expectant mothers who are infected with HIV-2 and their newborn infants to reduce MTCT risk, especially for women who become infected during pregnancy.
 - Treatment response is more difficult to monitor than in women infected with HIV-1. CD4 counts and physical signs of immune deterioration are currently being used for monitoring.
 - The woman's wishes: the healthcare provider should have a frank discussion with the woman infected with HIV-2 to explain the prevailing policy and practice and to support her in making a decision with which she is comfortable.
 - Continued surveillance to monitor the spread of HIV-2 is necessary.

Infant Feeding

The woman infected with HIV-2 should be advised to follow national and local infant-feeding recommendations for women infected with HIV-1.